U.S. DEPARTMENT OF COMMERCE
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PB-279 027

Air Quality, Public Information and Transportation Strategies

East-West Gateway Coordinating Council, St Louis, Mo

Prepared for

Environmental Protection Agency, Research Triangle Park, N C

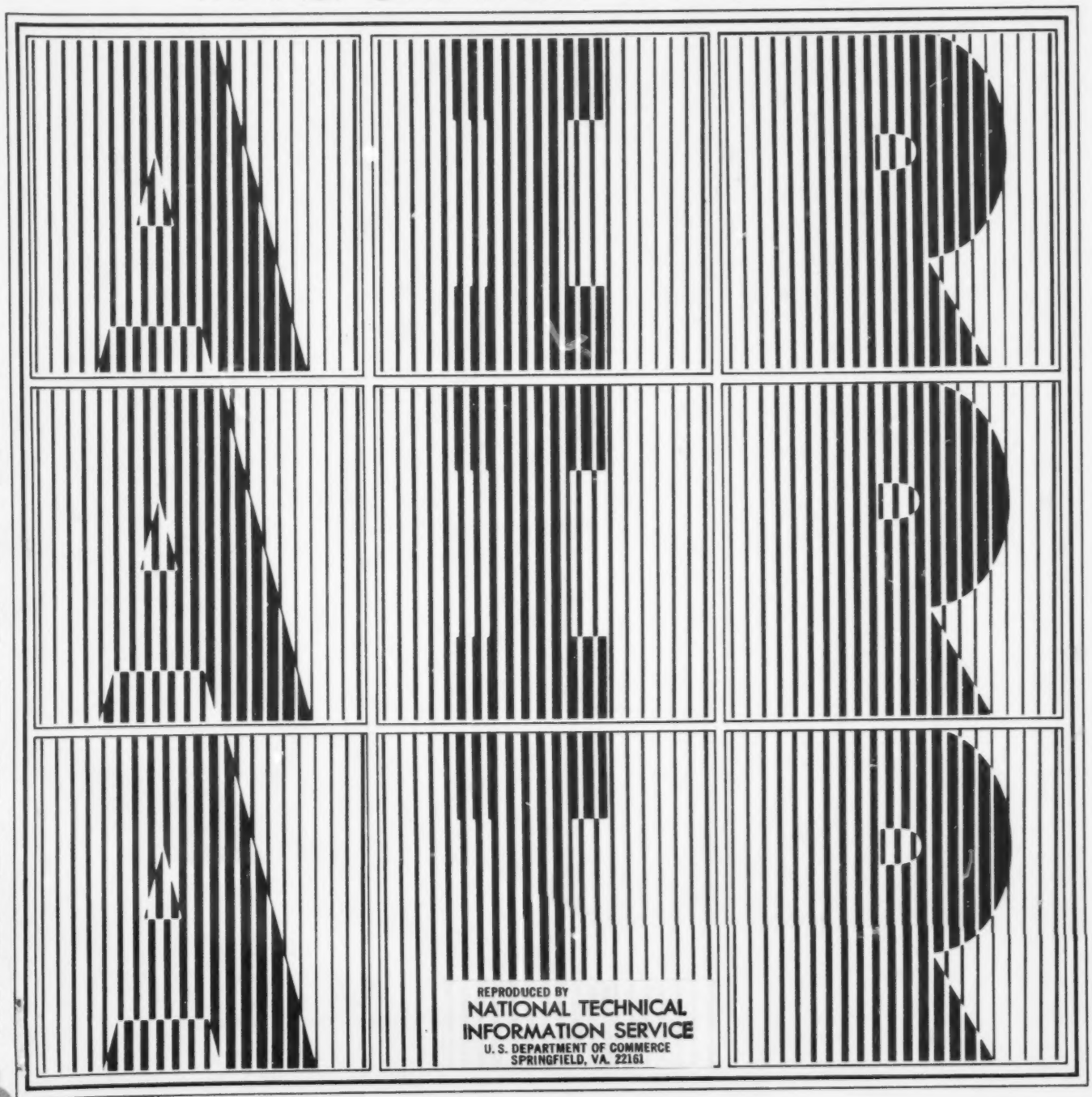
Jun 77

EPA 907/9-77-006

PB 279 027

~AIR QUALITY~

PUBLIC INFORMATION AND TRANSPORTATION STRATEGIES



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TECHNICAL REPORT DATA
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1. REPORT NO. EPA 907/9-77-006	2. EWG-JB-0333.15.0
3. RECIPIENT'S ACCESSION NO. PB279027	
4. TITLE AND SUBTITLE Air Quality Public Information and Transportation Strategies	5. REPORT DATE JUNE, 1977
	6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S) M. James Bogart Transportation Planning Staff	8. PERFORMING ORGANIZATION REPORT NO. EWG-JB-0333.15.0
9. PERFORMING ORGANIZATION NAME AND ADDRESS East-West Gateway Coordinating Council 112 North Fourth Street, Suite 1200 St. Louis, MO 63102	10. PROGRAM ELEMENT NO. 372.0 11. CONTRACT/GRANT NO. 68-02-2531
12. SPONSORING AGENCY NAME AND ADDRESS U.S. Environmental Protection Agency Washington, D.C. 20460	13. TYPE OF REPORT AND PERIOD COVERED Final Dec. 1976-June 1977 14. SPONSORING AGENCY CODE
15. SUPPLEMENTARY NOTES	

16. ABSTRACT

This report summarizes the air quality activities undertaken by the Council. These activities include conducting an areawide public information campaign, and promoting and developing various transportation control strategies designed to reduce excessive air pollution levels in the St. Louis air quality control region.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group

18. DISTRIBUTION STATEMENT Release unlimited	19. SECURITY CLASS *(This Report)* Unclassified 20. SECURITY CLASS *(This page)* Unclassified	21. NO. OF PAGES 69 22. PRICE A04-A01

EPA Form 2220-1 (9-73)

EPA 907/9-77-006

~AIR QUALITY~
PUBLIC INFORMATION AND TRANSPORTATION STRATEGIES

FINAL REPORT

By

M. James Bogart
East-West Gateway Coordinating Council

JUNE, 1977

Contract No. 68-02-2531

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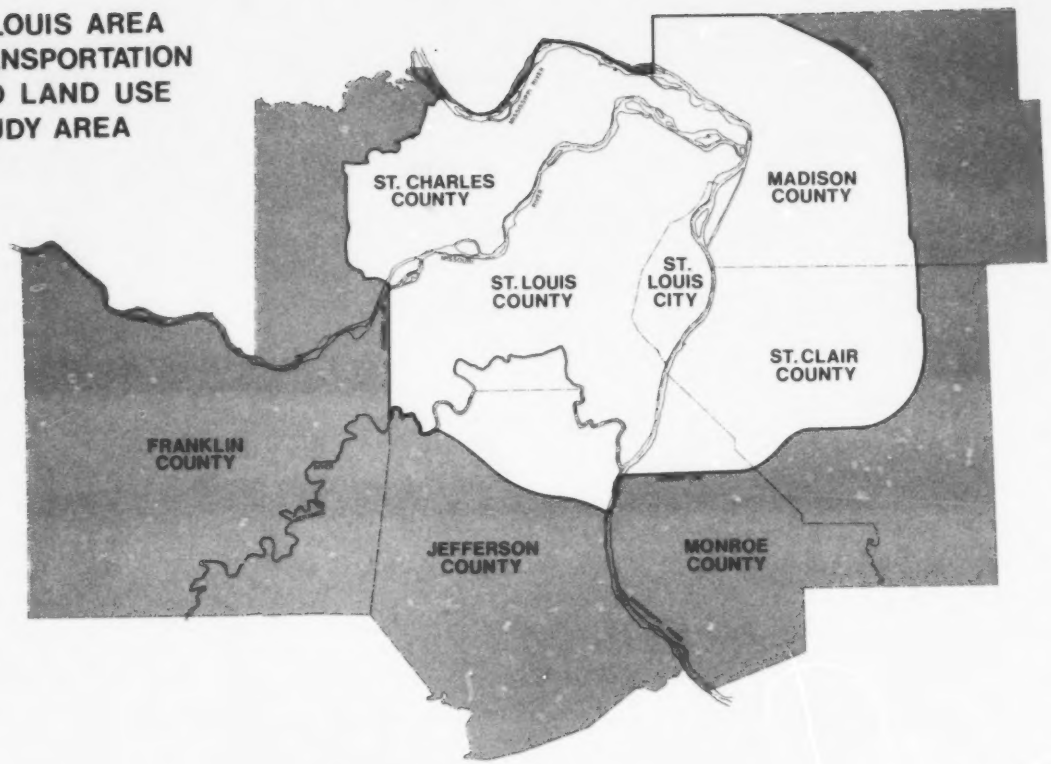
Region VII

Prepared For
U.S. Environmental Protection Agency
Research Triangle Park, North Carolina

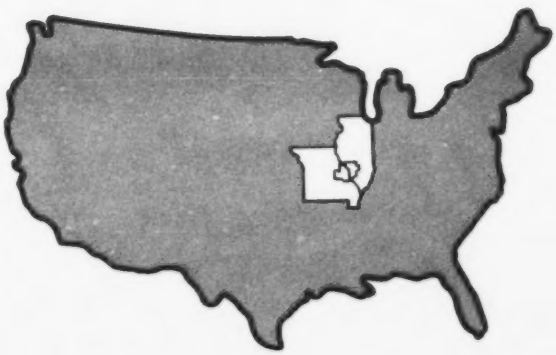
This final report was furnished to the U.S. Environmental Protection Agency by the East-West Gateway Coordinating Council in fulfillment of Contract No. 68-02-2531. The opinions, findings, and conclusions expressed in this report are not necessarily those of the U.S. Environmental Protection Agency.

ST. LOUIS AREA
TRANSPORTATION
AND LAND USE
STUDY AREA



ST. LOUIS
METROPOLITAN AREA

UNITED STATES



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INTRODUCTION

For several years, the East-West Gateway Coordinating Council (EWGCC) has been working with local, state, and federal officials to reduce air pollution levels in ths St. Louis region. The area presently violates national ambient air quality standards for two primary transportation-related pollutants; carbon monoxide and photochemical oxidants. In order to meet the primary, health-related standards, carbon monoxide concentrations must be reduced by 20 percent and concentrations of hydrocarbons, precursors of photochemical oxidants, must be reduced by 65 percent.

Most of the carbon monoxide and hydrocarbon pollution being experienced in the St. Louis area can be attributed to automobile travel. Nationwide, in urban areas such as St. Louis, well over 70 percent of the carbon monoxide emissions and 50 percent of the hydrocarbon emissions are from private automobiles. Despite extensive efforts to reduce these pollutants through the Federal Motor Vehicle Control Program, the health problems posed by air pollution have persisted.

In the St. Louis area, as in numerous other regions across the country, EPA has directed state and local officials to develop transportation control measures that are designed to reduce automobile emissions and automobile usage. The measures are aimed at those individuals who rely heavily on the automobile as their principal means of transportation. Through the use of incentives and disincentives, these control measures attempt to redirect the large amount of automobile usage to more efficient modes of transportation such as transit, and commuter vanpools and carpools.

Two years ago, the Council evaluated several transportation control strategies including: carpooling, rescheduled work hours, inspection/maintenance programs, exclusive bus/carpool lanes, transit improvements such as park-ride, parking management, and signal synchronization ("Transportation Control Strategies for the St. Louis Metropolitan Area: Technical Draft," April, 1976). Other cities' experiences with these strategies were examined, and the pollution-reducing potential of each of the measures for St. Louis was documented. Several of the strategies were endorsed by the Traffic Advisory Committee, an advisory body created by the State of Missouri and were subsequently presented to the Missouri Air Conservation Commission (MACC) at public hearings held in September, 1975.

Those transportation strategies considered to be feasible by the MACC were included in the State of Missouri's Oxidant and Carbon Monoxide Control Plan for the St. Louis Metropolitan Area which was submitted to EPA in April, 1976, and later accepted by EPA. In this plan, the MACC stated its commitment to the development of an inspection/maintenance program for the St. Louis area and called for the initiation and promotion of a voluntary action program that included transit improvements, car/vanpooling, and traffic flow improvements.

This report describes the air quality activities performed by the Council staff under contract for EPA. The Council's scope of work included: 1) conducting an areawide public information compaign, and 2) developing and promoting several transportation control strategies contained in the State's Oxidant and Carbon Monoxide Control Plan. The second section of this report outlines the public information activities. The third section summarizes the transportation control strategies, and the final chapter of the report delineates future air quality activities of the Council.

PUBLIC INFORMATION ACTIVITIES

The Council's areawide public information campaign constitutes an effort to educate and inform the St. Louis region's citizens, business people, and officials of the existing air pollution problem and the types of strategies that can be developed and implemented to mitigate the problem. Activities during the course of the campaign have included presentations to elected officials, citizen groups and associations, publication of relevant air quality information, and a series of three workshop/seminars.

Historically, the seriousness of the air pollution problem has been recognized by only a small segment of the population. Air pollution, except during extraordinary weather conditions has been a hidden problem due to the invisibility of several primary pollutants. As such, the elimination of pollution has not been considered a top priority by the general public. Benefits accruing from clean air have been for the most part intangible, and have therefore been imperceptible to the public.

Control strategies developed by federal, state, and local officials to reduce excessive pollution levels have

been directed at the measured pollution problem, that is the problem that has been detected and monitored by highly sensitive equipment and analyzed in research facilities. The severity of the measured pollution problem has prompted officials to propose and even promulgate transportation control measures that, if improperly planned and instituted, can negatively affect personal lifestyles and local economies. Heavy local resistance to many of the more stringent measures has indicated a serious need to provide more information to the general public on the problem, its impacts, the types of control strategies that can be implemented, and the costs and benefits derived from the implementation of these strategies. The Council's recently concluded public information campaign has been an initial effort to achieve the above objectives.

Monthly presentations have been made to the EWGCC Board of Directors, the Executive Advisory Committee, and the Regional Forum and its Environmental and Transportation Task Forces, between January and June, 1977. The topics of the presentations have varied from one month to another and have included transportation control strategies, the health effects of photochemical oxidants, inspection/maintenance programs, and the St. Louis air pollution problem. Considerable interest in the air quality program has been shown by both the Environmental and Transportation Task Forces of the EWGCC Regional Forum.

The presentations to citizen groups and associations undertaken by the Council staff have been an attempt to discuss the pollution problem with individuals and organizations that are not normally involved in the planning process and specifically the air quality program. A wide cross-section of groups has heard the Council's air quality presentation including a 6th grade ecology class, a secretaries association, and several neighborhood improvement associations. Geographically, presentations have spanned the region in west St. Louis County and Madison County, North City of St. Louis, and South St. Louis. Three radio shows and a television spot have been aired. The table on the next page lists the dates of the presentations, the audience, and the number in attendance. It is estimated that over 870 people have been exposed to various parts of the air quality presentations.*

Articles have been written and published in numerous newsletters and magazines. Air quality articles have appeared monthly in the East-West Directions, and have included an interview with John Levis, Chairman of the Missouri Air Conservation Commission. Articles have also appeared in the St. Louis Post-Dispatch, St. Louis Globe-Democrat, EWGCC Regional Citizen, ALERT, Downtowner, St. Louis Construction

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*This number is the sum of all the citizen group presentations. No attempt has been made to estimate the listening or viewing audience for the radio and television spots.

TABLE 1

Citizen Group and Association Presentations

Audience	Date	Attendance
Jewish Community Centers Assn.	2/28/77	80
Granite City Secretaries Assn.	3/3/77	20
Marine Villa Improvement Assn.	3/16/77	60
Clifton Heights Neighborhood Assn.	3/28/77	25
Queeny Township Republican Women's Club	4/4/77	10
Downtown St. Louis Optimist Club	4/15/77	30
Trautwein Elementary School	5/10/77	35
Wesley House Neighborhood Assn.	5/12/77	10
14th St. Mall Day	5/14/77	200
Hazelwood West Junior High School	5/31/77	350
Millstadt Women's Civic Club	6/16/77	20
Downtown St. Louis Lion's Club	6/29/77	30
KEZK Radio FM	3/16/77	-
KPLR - SOAPBOX	4/18/77	-
KADI Radio FM	4/29/77	-
KXOK Radio AM	6/7/77	-

News and Review, the McDonnell Douglas Spirit, The Bi-Stater, and Passenger Transport. In addition, an air quality brochure entitled "It's Your Air And You Can Help" has been developed by staff, and has been requested by numerous groups and agencies such as the League of Women Voters and the St. Louis County Air Pollution Control Division. Several news releases have been prepared and distributed to the press to inform them of key activities in the air quality program.

Three workshop/seminars have been developed and conducted by the Council. Each of the three workshop/seminars has been oriented toward a specific group of people:

TABLE II

SEMINAR/WORKSHOPS	DATE
Citizen's Air Quality Workshop/Seminar	4/11/77
Technical Air Quality Seminar	4/28/77
Local Officials Air Quality Breakfast Seminar	5/04/77

The agendas from these meetings, contained in Appendix I, document the distinct orientation of each one. Over 115 people attended the three seminars: 45 at the Local Officials'; 40 at the Technical; and 30 at the Citizen's Seminar.

The first workshop/seminar was jointly sponsored by the Council, the American Lung Association of Eastern Missouri, and the Greater St. Louis Health Systems Agency. The seminar included discussions of Congressional action in the air

quality area, the health effects of pollution, current St. Louis County and City of St. Louis air pollution control activities, the Occupational Safety and Health Administration's present efforts in St. Louis, and the Council's air quality program.

The second seminar was technical in nature and focused primarily on the inspection/maintenance program presently being considered by EPA and the State of Missouri. The meeting was well attended by local, state, and federal environmental and transportation experts.

The third seminar, oriented toward local officials, attracted the largest audience of the three meetings. The topic of the seminar was the current federal air quality programs, the State's activities, and the impact of these upon the St. Louis air quality control region. There was considerable discussion at the seminar on the need for improved coordination and more communication between the two states and the two federal EPA regional offices that have responsibility for the St. Louis bi-state air quality control region. The participants pledged at the meeting that greater efforts would be made in this area in the future. Questions were also raised concerning the relationship of the needs and desires of poor people and the possible negative impacts of air pollution control programs on this segment of the population.

The combined effect of the various activities undertaken in the public information campaign has been to increase the public's awareness of the air pollution problem. A substantial number of the region's citizens, officials, and organizations have received information, participated in seminars, or listened to presentations on particular aspects of the air quality program. These types of informational activities are essential to understanding the air contaminant problem in the St. Louis metropolitan area.

TRANSPORTATION CONTROL STRATEGIES

Transportation control strategies promoted and developed by the Council staff include two vanpool projects, a transit promotion project, and a traffic flow improvement. These are demonstration projects that are presently being evaluated and will continue to be monitored and assessed for their effectiveness in reducing air pollution and conserving energy. When implemented on a regional basis these strategies have significant potential for reducing existing air pollution levels.

The two vanpool projects and the transit promotion project are efforts to decrease vehicle miles traveled (VMT), and are directed primarily at commuter trips. By providing attractive alternatives to the automobile such as vanpools or new buses, and by increasing the public awareness of existing transit service and the net benefits derived from using transit, commuter trips can be diverted from the single-occupant automobile mode to the transit or vanpool mode. The regularity and geographic repetition of commuter trips makes these travel patterns susceptible to a shift of modes to the less polluting, more energy efficient

alternatives. It should be noted that vanpools and transit, when properly planned, complement each other. Vanpools are generally designed to reach those areas of the region where there is inadequate transit service, or where low densities simply make transit operations uneconomical and impractical.

The traffic flow improvement project is a traffic signal interconnect system on a major arterial street. The purpose of interconnection and synchronization is to allow for the uninterrupted flow of vehicles in the predominant direction of traffic. The result is an increase in average vehicle speed, a decrease in delays and congestion, and consequently, a reduction in automobile emissions. Improved traffic flow can also have a positive effect on express bus service in reducing transit travel and delay time. Synchronization has little impact, however, on local bus service due to the frequency of stops for passenger pick-ups and departures.

Vanpool Demonstration Projects

A concerted promotional effort has been undertaken by the Council to provide information and planning assistance to employers in the St. Louis area expressing interest in the vanpooling alternative. A recent "Vanpooling Is Vantastic" Seminar, sponsored by the Council, indicated substantial interest in vanpooling. Representatives from

forty major firms in the St. Louis region attended the seminar and received packets of material that included information on vanpool programs in other cities, benefits, costs, federal funding requirements and procedures, and insurance and public service commission regulations.

Vanpooling is defined as a group of riders using a van-type vehicle to commute between places, generally to and from work. Vans typically can accommodate between eight and fifteen passengers. A vanpooling program can be financially self-sustaining when the purchase, operating, and maintenance costs are recovered from fares charged to users.

Prior to initiating the vanpool promotion program, a booklet entitled "Vanpooling In The St. Louis Area" was developed and mailed to major employers in the region. The brochure provides employers with basic information on all aspects of a vanpool program.

A number of firms and institutions were personally contacted to ascertain their interest in establishing a demonstration program either with the use of their own funds or Federal-Aid Urban System (FAUS) monies. Of these, three expressed substantial interest in a vanpooling program--the Washington University School of Medicine, Monsanto Corporation, and McDonnell Douglas Corporation. As illustrated in Figure I, both Monsanto and McDonnell Douglas are located in St. Louis County and the School of Medicine is in the

FIGURE 1

LOCATION OF VANPOOLING PROJECTS

EAST-WEST GATEWAY
COORDINATING COUNCIL
SAINT LOUIS
METROPOLITAN AREA
1977

City of St. Louis. To date, only the Washington University School of Medicine has made a definite commitment to a vanpooling program. Programs at Monsanto and McDonnell Douglas still have not gained final approval of top management.

The School of Medicine is situated in the Central West End of the City of St. Louis in the center of the Washington University Medical Center Complex which includes Barnes Hospital, Children's Hospital, Jewish Hospital, Central Institute for the Deaf, and the St. Louis School of Pharmacy. The close proximity of these institutions while advantageous for the effective operation of the Medical Center, has created serious parking problems and traffic congestion. These problems are expected to become more critical as the Medical Center continues to expand its facilities and thereby attract additional vehicles to the area.

The Washington University School of Medicine, which employs 2,600 people, has been concerned for some time over the serious parking and traffic problems at the Medical Center Complex. The School's officials worked with the Bi-State Development Agency and the Council on various transit improvements in the area. Following passage of the Federal-Aid Highway Act of 1976 which made Federal-Aid Urban System

(FAUS) and Federal-Aid Primary (FAP) funds available to employers to establish vanpool projects, the School of Medicine's officials expressed interest in initiating a vanpool program. In April, 1977, a pre-application for a demonstration vanpool program with six 12-passenger vans was submitted by the Washington University School of Medicine to the Council for A-95 Review. The project, which had been included in the Council's FY 1977 TSM Document, was approved by the EWGCC Board of Directors and was placed on the Council's adopted Transportation Improvement Program for Fiscal Years 1977 through 1981.

The chart below shows the cost breakdown of the vanpool project at the School of Medicine:

TABLE III

Cost Breakdown of
Vanpool Program
Washington University School of Medicine

Cost of Vans (6) $8,700 each	$52,200
Salaries, Planning and Development	20,300
	$72,500

Extensive work has been accomplished by the School's officials in planning the vanpool project, as shown by the calculations in Table IV and V. The Council is working with School officials to plan potential routes, and provide assistance in investigating insurance rates and licensing requirements. The staff is also continuing it's vanpool

TABLE IV
COMMUTE-A-VAN CALCULATIONS

Washington University Medical School

I. Monthly Fixed Costs of Commute-A-Van Vehicle:

1.	Cost of Vehicle	$7,600.00		
	Immed. Depreciation (tires)	- 253.33		
		$7,346.67		
	Less Salvage Value (after 4 years)	-2,208.00		
	Depreciable Value	$5,138.67	or	107.05/mo.
	Insurance (1000/yr.)		or	83.33/mo.
2.	Additional Fixed Costs (license, registration, taxes)	588.00	or	12.25/mo.
	Total Monthly Fixed Cost for 48 months			202.63
	Total Yearly Fixed Cost			2,431.56

II. Operating Costs of Commute-A-Van Vehicle:

Gas: $.585 @ 9 miles/gallon	$ .065
Oil, Filter & Lub @ $15/time	$ .005
Other Maintenance	$ .012
Tires-Life of Vehicle	$ .010
	$ .092

III Fare Calculation

1.	Mileage round trip	45.6 miles
2.	Miles per year	250 X 45.6 = 11,400
3.	Fixed Cost per mile	2,431.56÷11,400 = .21
4.	Operating Cost per mile	.09/mile
5.	Total cost per mile	.30
6.	Cost per day	.30 X 45.6 = 13.68
7.	Cost per person per day	13.08 ÷ 8 = 1.71
8.	Cost per person per month	1.71 X 21 = 35.91

TABLE V

COMMUTE-A-VAN FARES

Round Trip Miles/Day	Fixed Cost/Mile	Total Cost/Mile	Cost/Person Day	Cost/Person/ Month
5	$1.99	$2.08	$1.30	$27.30
10	.99	1.08	1.35	28.35
15	.66	.75	1.41	29.61
20	.50	.59	1.48	31.08
25	.40	.49	1.53	32.13
30	.33	.42	1.57	32.97
35	.28	.37	1.62	34.02
40	.25	.34	1.70	35.70
45	.22	.31	1.74	36.62
50	.20	.29	1.81	38.06
55	.18	.27	1.86	38.98
60	.17	.26	1.95	40.95
65	.15	.24	1.95	40.95
70	.14	.23	2.01	42.26
75	.13	.22	2.06	43.31
80	.12	.21	2.10	44.10
85	.12	.21	2.23	46.86
90	.11	.20	2.25	47.25
95	.11	.20	2.38	49.88
100	.10	.19	2.38	49.88
150	.07	.16	3.00	63.00

promotion and assistance efforts at both Monsanto and McDonnell Douglas, as well as several other area employers who are in the preliminary stages of considering or planning vanpool programs.

As noted earlier, of the three employers that the Council has worked with, only the Washington University School of Medicine has obtained a commitment from top management to the vanpool concept. Upon approval by the Federal Highway Administration of their application for Federal Aid Urban System Funds, School officials will initiate the 6-van project. Although not yet approved, Monsanto and McDonnell Douglas are considering establishing 20-van and 7-van programs, respectively. The net effect of the three employer's combined 33 vans, assuming a nine passenger per van average occupancy rate and a 1.2 private automobile average occupancy rate, would be the elimination of nearly 250 automobiles from the road. This translates into a daily vehicle miles traveled (VMT) reduction of 4,000 miles, or almost 1,000,000 miles annually. It should be noted that these calculations do not take into consideration the use made of automobiles that are left at home by vanpool participants. This is one aspect of van/carpool and rescheduled work hour programs that has received little attention. As the Medical School program progresses, relevant information such as this will be collected to more accurately

assess actual VMT reductions. It is important to ascertain not only the amount of mileage being registered, for example, by another member of the family since an automobile is available that previously was not, but also the types of trips that are being made in lieu of the original commuter trips, if any.

An additional factor in the promotion and development of these vanpool programs is the gradual expansion of the successful projects. The financially self-sustaining nature of the majority of existing vanpool programs allows for the gradual expansion of these programs through the establishment and effective use of a revolving fund of vanpool revenues. If vanpool programs are successfully instituted by Monsanto and McDonnell Douglas in addition to the School of Medicine, the 33 vans fleet could be expected to increase. This increase would yield even greater reductions in VMT.

Transit Promotion Project

In recent years ridership on the Bi-State transit system has been steadily increasing. This has been due primarily to the lowering of bus fares, expansion of existing service and the addition of new service, new equipment, and a more extensive public information and marketing program. National and local studies and surveys undertaken in the last few years have indicated a significant lack of

awareness by the general public of existing transit service. This has caused many transit operators to increase promotional and marketing budgets to develop innovative approaches to make the public more aware of available transit service.

Transit service in the St. Louis region has significant potential to further reduce automobile usage, and in particular the single-occupant automobile commuter trip. Service improvements instituted by Bi-State have demonstrated that auto users can be diverted to transit if service is made more convenient, comfortable, and economical.

In February, 1977, Council staff met with the Director of Public Information and the Community Relations Officer of the Bi-State Development Agency to discuss the air quality program and specifically, a joint transit promotion effort by the two agencies. Bi-State expressed interest in this type of effort, and in subsequent meetings a transit promotion project was developed. Bi-State staff was already in the process of making final preparations for their quarterly service improvements, slated for implementation on April 18. One of the proposed improvements was the Spanish Lake-Hazelwood Express serving the McDonnell Douglas Complex. Because of the extensive bus service in the McDonnell Douglas area, as shown in Figure II and III (13 lines including the new Spanish Lake-Hazelwood Express), the low bus ridership on some of the 13 lines, and the cooperation

exhibited by McDonnell officials in previous work with Bi-State and the Council, it was agreed that the McDonnell Douglas Complex would provide an excellent opportunity to test a transit promotion project.

Following discussions with McDonnell Douglas officials, a final transit project was agreed upon and jointly developed. The project consisted of the following:

1. McDonnell Douglas Transit Service Brochure

   The brochure contains a mini system map, a regional map, a description of all 13 lines serving the Complex, an information reply card, and information on bus fares, zones and transfers, passes, and the name and the telephone number of the McDonnell Douglas transit coordinator. Some 12,000 brochures are being distributed and more are available to employees at various locations throughout McDonnell Douglas.

2. Timetables

   Route timetables have been distributed throughout the Complex.

3. Posters

   250 posters have been placed on bulletin boards throughout the Complex. The poster is contained in Appendix II.

4. Transit Coordinator

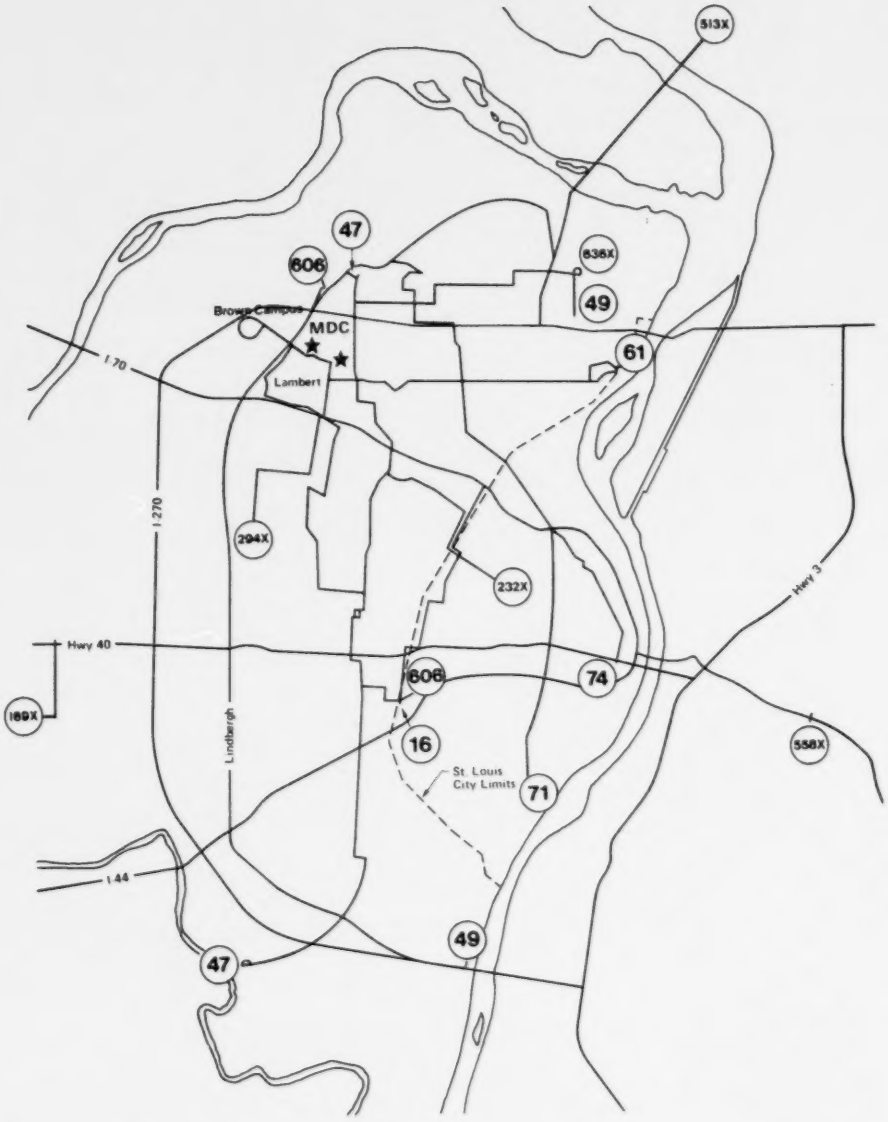
   The McDonnell Douglas Community Liaison Engineer, who has worked with Bi-State and the Council on several projects, was designated the transit coordinator, assigned to direct this project.

5. Kickoff Event/Management Support

   Informational displays were set up at three McDonnell Douglas buildings including Brown Campus, Engineering

FIGURE 2

McDONNELL DOUGLAS TRANSIT SERVICE



EAST-WEST GATEWAY COORDINATING COUNCIL
SAINT LOUIS METROPOLITAN AREA
1977

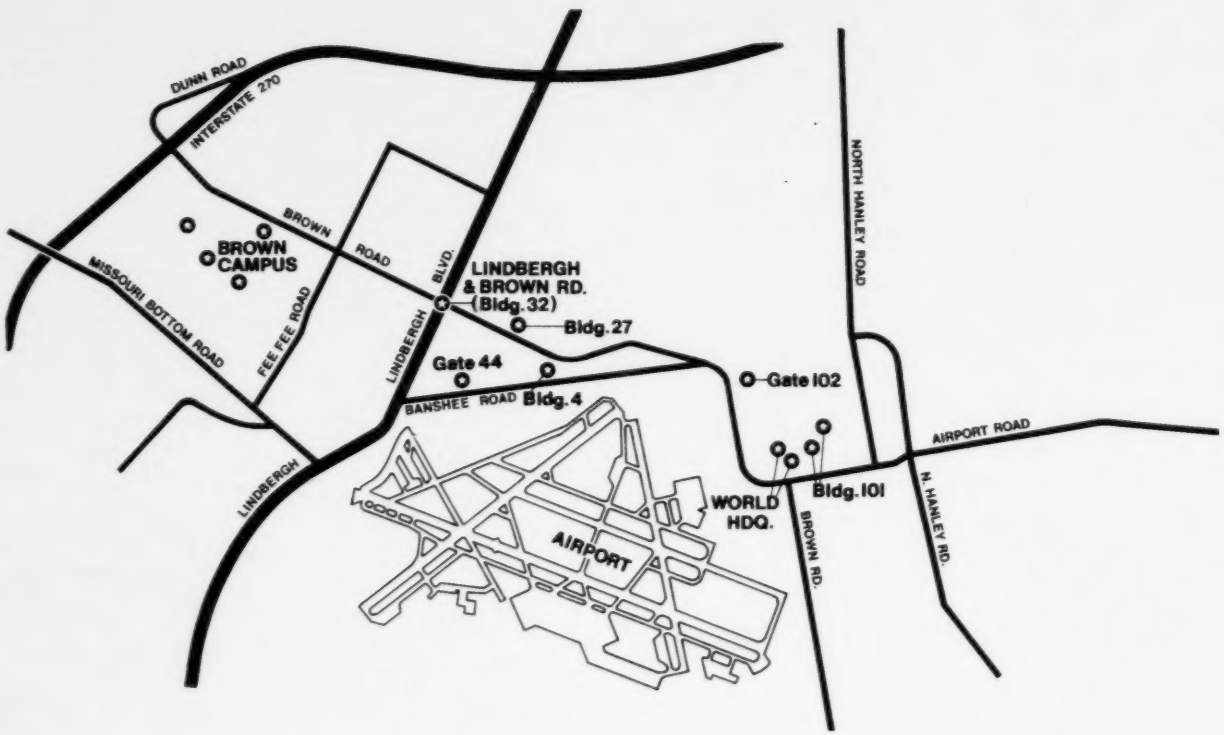
NOW 13 ROUTES GOING YOUR WAY

ALTON-HAZELWOOD PARK RIDE	513x
ASHBY-HAZELWOOD EXPRESS	294x
BROWN CAMPUS EXPRESS	71
CHAMBERS ROAD	61
CITY LIMITS — BERKELEY	16
CROSS COUNTY	47
FLORISSANT — BERKELEY	74
KING DRIVE-HAZELWOOD EXPRESS	232x
LINDBERGH	49
MAPLEWOOD AIRPORT	606
SPANISH LAKE — HAZELWOOD EXPRESS	636x
TUBMAN EXPRESS	558x
WEST COUNTY EXPRESS	169x

Effective 4-18-77. Routes and Schedules subject to change.

FIGURE 3

McDONNELL DOUGLAS TRANSIT SERVICE SUBAREA



IMPORTANT NOTICE:
Certain trips on each line shown do not make all stops indicated. Consult individual timetables or call Bi-State for precise bus stop information.

EAST-WEST GATEWAY COORDINATING COUNCIL
SAINT LOUIS METROPOLITAN AREA
1977

BUS STOPS / BUS ROUTES	513X	71	294X	61	16	47	74	232X	49	606	636X	558X	169X
WORLD HEADQUARTERS	•	•	•	•	•	•			•		•	•	•
GATE 102	•	•	•	•	•		•	•	•		•	•	•
BUILDING 101		•	•	•	•		•	•	•		•	•	
BUILDING 4	•		•	•	•		•	•	•	•	•	•	•
GATE 44	•		•	•	•		•	•	•	•	•	•	•
BUILDING 27	•	•	•		•		•	•	•	•	•	•	•
LINDBERGH & BROWN	•	•	•	•	•		•	•	•	•	•	•	•
BROWN CAMPUS		•		•									•

Campus, and World Headquarters. Displays consisted of a new flexible bus with the kneeling feature, an information clerk, and the Bi-State Community Relations Officer. Over 800 people were contacted during the three day period. McDonnell Douglas supported these displays with messages on their company-wide public address broadcasts, and an article in the Spirit, their corporate publication.

6. Internal Promotion at McDonnell Douglas

The Spirit has regularly published information on transit service and scheduled improvements.

7. New Employee Transit Orientation

New employees will be given transit information upon joining the company.

8. New Service Promotion

The inauguration of new services has boosted the kickoff of this project. Additionally, future service improvements can be more easily introduced to McDonnell Douglas employees now that the coordinator has been designated.

9. Evaluation

Detailed pre-implementation ridership data (shown in Table VI) has been accumulated. Post-implementation data will be collected by July. Data from the employee survey is now being processed. A copy of the survey is shown in Appendix II. This data will be compared to information collected later this calendar year to determine the impact of the project on employee awareness levels.

TABLE VI

Weekly McDonnell Douglas Transit
Ridership Counts

Line No.	Name	A.M. Total	P.M. Total	Total
558	Tubman Express	374	359	733
47	Cross County	237	281	518
49	Lindbergh	1,575	1,498	3,073
71	Brown Campus Express	34	40	74
61	Chambers Road	453	764	1,217
74	Florissant	65	43	108
513	Alton-Hazelwood Park-Ride	189	163	352
16	City Limits-Berkeley	147	113	260
606	Maplewood-Airport	98	97	195
169	West County Express	244	193	437
232	King Drive-Hazel-Wood Express	54	24	78
294	Ashby-Hazelwood	118	107	225
636	Spanish Lake-Hazelwood Express*	-	-	-
	Total	3,588	3,682	7,270
	Annual Estimated Ridership			370,770

*Ridership figures are not yet available on this line due to the newness of this service.

SOURCE: Bi-State Development Agency, Program Development Division

The project is significant because for the first time, a special brochure was produced that capsulized transit service for a major employer, pre-implementation ridership counts and survey data were collected and eventually post-implementation data will be collected and analyzed, special graphics were produced, and an acceptable level of management support and commitment was obtained for the project. Since the initiation of the project, over 700 telephone calls have been received by the McDonnell Douglas transit coordinator, and over 150 reply cards have been received by Bi-State.

Traffic Flow Improvement

Municipalities and counties throughout the St. Louis region and the Missouri State Highway Department and Illinois Department of Transportation are annually implementing various types of traffic flow improvements to reduce vehicle congestion and delays and increase safety, thereby lessening accident potential. Many of these projects are included in the Transportation Systems Management (TSM) Element as actions to ensure the efficient use of existing road space. These improvements vary from low-cost measures such as signing and lane striping to more costly actions such as signalization and signal interconnection.

Based on this year's TSM work, several municipalities were contacted to determine the status of their currently

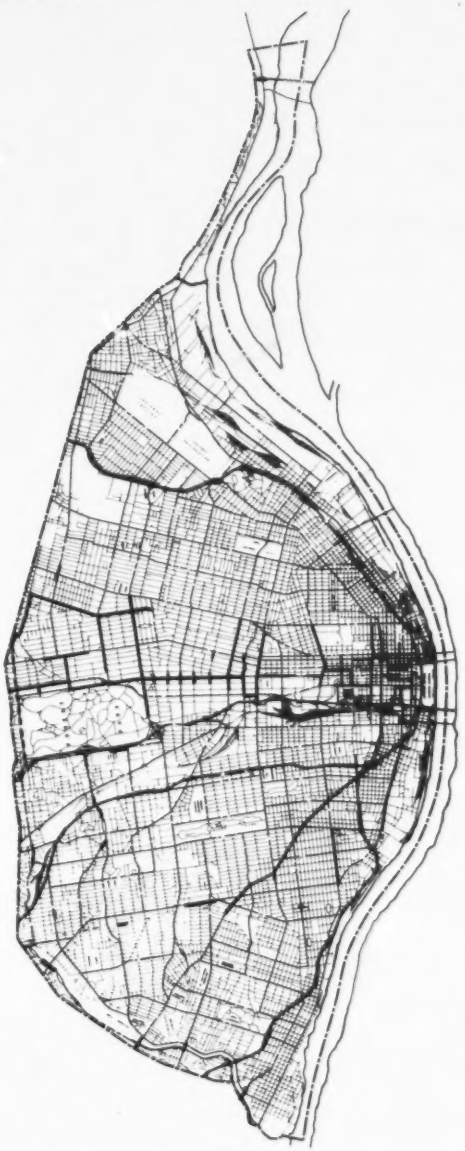
programed traffic flow improvements. Because there was no money in the air quality contract to aid in the implementation of these flow projects, it was decided that the project selected would have to be already programed and/or funded for implementation. The Council staff could offer its assistance in monitoring and gathering data on the project before and after implementation to measure the project's effectiveness in reducing pollutants.

The project chosen for analysis was a signal interconnect improvement contained in the FY '77 TSM Element to be implemented by the City of St. Louis during the next fiscal year. The improvement is on a segment of Skinker Boulevard from Clayton Road to Olive Street Road. The reason for the hard wire interconnect is to allow for better control in the synchronization of the traffic signals. As shown in Figures IV and V, Skinker Boulevard is located in the far western portion of the City of St. Louis, bounding Forest Park on the west. Skinker is a major arterial feeding several major east-west routes, including Olive Street Road, Delmar Boulevard, Forest Park Parkway, Lindell Boulevard, U.S. Route 40, and Clayton Road. Eight signals are now in place on this section of Skinker at the intersections of Clayton Road and Skinker, Forsyth Boulevard, Waterman, Forest Park Parkway, Delmar, two signals at the fork at Olive Street Road, and a pedestrian crossing south of Wydown Boulevard.

FIGURE 4

EXISTING CITY SIGNAL INTERCONNECTS

SAINT LOUIS, MISSOURI



EAST-WEST GATEWAY
COORDINATING COUNCIL
SAINT LOUIS
METROPOLITAN AREA
1977

------- PROPOSED SKINKER BLVD. INTERCONNECT PROJECT

——— EXISTING INTERCONNECTS

FIGURE 5

PROPOSED SKINKER BLVD. INTERCONNECT PROJECT

EAST-WEST GATEWAY
COORDINATING COUNCIL
SAINT LOUIS
METROPOLITAN AREA
1977

● TRAFFIC SIGNAL

Table VII shows traffic counts collected by the City of St. Louis in 1975 and 1976 for Skinker Boulevard. The 1975/1976 counts show heavy traffic volumes at several intersections. These include the intersections of Skinker and Clayton (11,071 ADT); Skinker and Delmar (16,648 ADT); Skinker and Lindell (13,007 ADT); and Skinker and Rosebury (12,718 ADT). These traffic counts will be updated in late 1977 when the City of St. Louis completes its current traffic count program. In addition the Council has collected speed and delay data on Skinker in 1975 and 1977. The 1977 data is not yet available, but the 1975 data indicates several significant delays and low speeds on this segment of roadway, as shown in Table VIII and IX.

Table VII Skinker Boulevard
Traffic Count Summary

Location	Counting Period	Dir.	ADT	Peak Hour End Time	Peak Hour Vol.	Peak 15 Min.
S SKINKER BLVD S/O CLAYTON AV	APR 21-25,1975	NB	7,863	7/45AM	900	240
				5/00PM	670	180
S SKINKER BLVD N/O CLAYTON AV	APR 21-25,1975	SB	11,071	9/15AM	900	370
				5/30PM	1,310	340
N SKINKER BLVD S/O DELMAR BL	OCT 14-18,1976	NB	16,648	8/15AM	1,610	460
				4/15PM	1,890	490
N SKINKER BLVD N/O DELMAR BL	NOV 30-DEC 2,1976	SB	10,306	8/45AM	960	270
				5/45PM	920	270
N SKINKER BLVD N/O FOREST PARK PK	JAN 12-16,1976	SB	10,372	7/15AM	1,250	330
				2/00PM	1,250	360
N SKINKER BLVD S/O LINDELL BL	JAN 12-16,1976	NB	13,007	8/30AM	1,090	300
				3/45PM	1,200	320
N SKINKER BLVD N/O LINDELL BL	JAN 12-16,1976	SB	10,775	8/30AM	1,200	320
				5/30PM	1,070	290
S SKINKER BLVD S/O ROSEBURY AV	JUL 7-9,1975	NB	12,718	8/45AM	1,020	300
				5/15PM	1,040	270
S SKINKER BLVD N/O ROSEBURY AV	JUL 7-9,1975	SB	12,417	8/30AM	1,020	280
				5/30PM	1,480	440
N SKINKER BLVD S/O WABASH-NORFOLK	MAY 13-16,1975	NB	6,846	8/15AM	760	210
				5/30PM	1,130	340
N SKINKER BLVD N/O WABASH-NORFOLK	MAY 13-16,1975	SB	9,273	8/45AM	890	250
				4/45PM	890	290

TABLE VIII

SPEED-DELAY REPORT FOR SKINKER BOULEVARD

MORNING RUN NORTH BOUND

INTERSECTION	AVG. TIME	AVG. DELAY	AVG. SPEED IN MPH	DIST-ANCE IN MILES	DELAY AS % OF TRIP TIME	FLAG* CODE
CLAYTON RD						
FORSYTH BLVD	1:57	0:27	24	0.80	23.43	GREEN
LINDELL BLVD	0:26	0:05	15	0.11	20.61	WHITE
FOREST PARK	1:09	0:41	6	0.11	60.29	GREEN
DELMAR BLVD	1:27	0:16	18	0.43	19.18	GREEN
OLIVE ST RD	1:02	0:14	22	0.38	22.58	WHITE

AVG. TRAVEL TIME FOR ROUTE 6 MIN, 2 SEC. AVG. DELAY FOR ROUTE 1 MIN, 45 SEC, AVG. SPEED FOR ROUTE= 18 MPH AVG. DELAY AS % OF AVG. TRAVEL TIME= 29.07%

*FLAG CODE FOR DELAYS

White - less than 16 seconds
Green - less than 1 minute
Blue - less than 2 minutes
Orange - less than 3 minutes
Red - more than 3 minutes

Source: Speed and Delay Study, East-West Gateway Coordinating Council, June, 1975.

TABLE IX

SPEED-DELAY FOR SKINKER BOULEVARD

EVENING RUN SOUTH BOUND

INTERSECTION	AVG. TIME	AVG. DELAY	AVG. SPEED IN MPH	DIST-ANCE IN MILES	DELAY AS % OF TRIP TIME	FLAG CODE
OLIVE ST. RD						
DELMAR BLVD	1:06	0:18	21	0.38	28.11	GREEN
FOREST PARK	1:02	0:03	25	0.43	5.72	WHITE
LINDELL BLVD	0:20	0:00	19	0.11	0.00	WHITE
FORSYTH BLVD	1:01	0:48	6	0.11	79.71	GREEN
CLAYTON RD	1:55	0:22	25	0.80	19.88	GREEN

AVG. TRAVEL TIME FOR ROUTE 6 MIN, 6 SEC, AVG. DELAY FOR ROUTE 1 MIN, 34 SEC, AVG. SPEED OF ROUTE = 20 MPH, AVG. DELAY AS % OF AVG. TRAVEL TIME = 25.65%

The speed and delay data presented in these two tables is a result of a maximum of six runs in the morning peak period and six runs in the evening peak period.

After the interconnect project has been completed by the City of St. Louis, additional speed and delay information will be collected to determine the net impact of the project in reducing delays and excessive idling time. At that point, a conclusion can be drawn as to the effectiveness of this type of improvement in reducing automobile emissions. The updated traffic counts will be compared to previous counts as an indicator of whether volumes can be expected to increase as a result of improved vehicle flow.

Considerable interest has been shown by a number of citizens in the area on traffic flow problems. A letter to the Council (see Appendix III) from a citizen on the Transportation Task Force has prompted that body to form a subcommittee to begin to examine possible approaches to effectively deal with traffic problems being experienced by area citizens. This renewed interest in improving traffic flow to reduce pollution and conserve energy is a direct result of the air quality work performed by the staff.

FUTURE AIR QUALITY WORK

St. Louis is one of 38 metropolitan areas that has been required by EPA to develop transportation control strategies mandated by the Clean Air Act Amendments of 1970. A majority of these metropolitan areas are in the process of developing transportation strategies. However, few areas have developed a total transportation control plan designed to reduce pollutants regionwide, and no area has yet implemented a plan in its entirety even if it has been developed and gained EPA approval. Local resistance to many of those proposed strategies and plans, in conjunction with a series of court cases has generally prevented implementation of transportation control plans.

Much of the local resistance to various transportation strategies can be attributed to the public's general lack of awareness of: 1) the seriousness of the air pollution problem, and 2) both the direct and indirect benefits that can be accrued by instituting pollution-reducing measures. The Council's scope of work in the air quality program has addressed these two problem areas. Based upon the work accomplished during FY 1977, it is suggested that efforts be

continued to inform area residents and officials of the pollution problem and the programs being developed to reduce excessive pollutant levels. Furthermore, it is essential that demonstration projects continue to be planned, promoted, implemented, monitored, and evaluated to firmly establish the need for, purpose of, and probable effects of transportation control strategies. This would provide implementation experience that is so desperately needed to convince the public of the merits of many of the transportation strategies.

The following specific recommendations are offered based on the experience gained from this year's air quality activities:

A. Continuation of Public Information Campaign.

A general lack of awareness of the air pollution problem persists in the St. Louis region. Strides have been made in increasing the level of awareness of citizens and officials but there remains much to do. The articles developed by staff for local publications, the brochures, and the small group presentations have been extremely effective in conveying pollution information to the public. The three seminar/workshops conducted by the Council were not as well attended as might be expected. Of particular note was the citizen's seminar which attracted only 30 people despite the fact that it was well-publicized and featured a United States Congressman. Again, it would seem that smaller size group presentations are the best method of gaining public involvement in the air quality program. The air quality slide show to be developed and used during FY 1978, and the inspection/ maintenance slide show which has already

been developed, will help considerably in these presentations. The successful development, implementation, and operation of the proposed inspection/maintenance program by the State of Missouri will also depend upon the informational activities carried out by the Council Staff. It is therefore recommended that the above informational approach be applied to the promotion of inspection/maintenance by the Council and the State of Missouri (Department of Natural Resources and Missouri Air Conservation Commission).

B. Development and Promotion of Transportation Control Strategies

The primary thrust of this work has been to promote and develop various transportation strategies designed to reduce vehicle miles traveled and/or idling and delay time, and thereby decrease vehicle emissions. Several demonstration projects have been established which, in view of the preliminary evaluation, appear to have considerable potential for reducing pollutants. Assessment of these projects (transit promotion, vanpools, traffic flow improvements) will be continued to determine their effectiveness, and will be included in the FY 1978 Transportation Systems Management Element. The monitoring and detailed evaluation of the transportation strategies will provide accurate data on the benefits, costs, and problems encountered in the planning and implementation of the measures.

Promotion of vanpooling should be continued concurrently with the evaluation of established projects. Additionally, it is recommended that a second transit promotion project be developed to determine the effectiveness of a different type of promotional approach and transit improvement in diverting automobile commuters to buses. For example, this improvement could be a park-and-ride lot or an exclusive bus lane. This would provide additional data on the types of incentives that are necessary to effect shifts in transportation modes.

APPENDIX I
PUBLIC INFORMATION

ST. LOUIS AIR QUALITY WORKSHOP/SEMINAR CO-SPONSORED BY
THE AMERICAN LUNG ASSOCIATION OF EASTERN MISSOURI
GREATER ST.LOUIS HEALTH SYSTEMS AGENCY,
AND THE EAST-WEST GATEWAY COORDINATING COUNCIL

APRIL 11 7:00 P.M.
UNIVERSITY CITY LIBRARY
2ND FLOOR AUDITORIUM

7:00 Welcome and Introduction
Wallace Altes, Director of Transportation Planning
East-West Gateway Coordinating Council

7:10 Overview
Honorable Richard A. Gephardt
U.S. House of Representatives
3rd District, Missouri

7:30 Health Effects of Air Pollutants
Dr. Raymond Slavin
Professor of Internal Medicine
Director of the Section of Allergy and Immunology
St. Louis University Medical Center

7:50 Movie - "Air is For Breathing"

8:20 City of St. Louis Air Pollution Control
Charles M. Copley, Jr., Director

8:35 St. Louis County Air Pollution Control
Otto Geyer, Acting Director

8:50 Group Sessions
- Occupational Air Pollution
- Ambient Air Pollution
- Transportation Strategies

9:30 General Discussion
Questions and Comments

AIR QUALITY SEMINAR

Sponsored by

THE EAST-WEST GATEWAY COORDINATING COUNCIL
April 28, 1977 10:00 A.M.
Pierce Building, Suite 1200
112 N. 4th Street
St. Louis, Missouri 63102

AGENDA

10:00	Welcome Alan C. Richter Executive Director, EWGCC
10:05	Summary of Council's Transportation-Air Quality Planning Activities (Vanpooling, Transit, Traffic Flow Improvements) James Bogart Project Director, EWGCC
10:20	Overview of Missouri's Air Quality Program Michael T. Marshall Staff Director, Missouri Air Conservation Commission
11:05	Inspection/Maintenance Slide Show
11:30	Lunch Break
12:45	Status of St. Louis Inspection/Maintenance Plan Environmental Protection Agency, Region VII
1:30	Emission Inspections Automobile Club of Missouri
2:00	Discussion and Questions

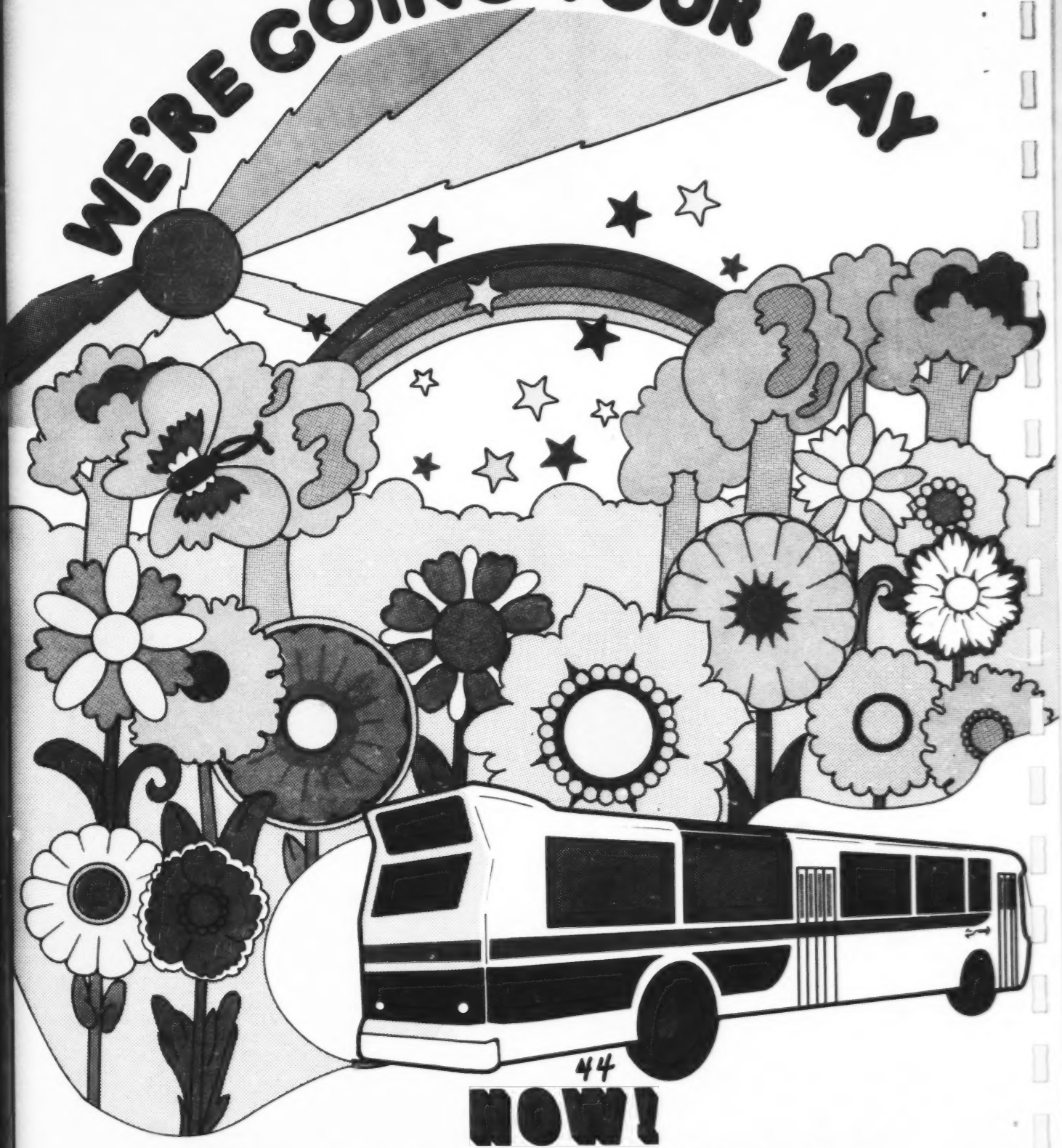
EAST-WEST GATEWAY COORDINATING COUNCIL

AIR QUALITY BREAKFAST SEMINAR
SPONSORED BY
EAST-WEST GATEWAY COORDINATING COUNCIL
WEDNESDAY, MAY 4, 1977
BRECKENRIDGE PAVILLION HOTEL

7:30 a.m.	Breakfast
8:00 a.m.	Welcome and Introduction Wallace Altes Director of Transportation and Administration, EWGCC
8:10 a.m.	National Air Quality Program George Alexander Administrator Region V Environmental Protection Agency
8:35 a.m.	Missouri's Air Quality Program John Levis Chairman Missouri Air Conservation Commission

APPENDIX II
TRANSIT PROMOTION

WE'RE GOING YOUR WAY



44

NOW!

13 Routes to McDonnell Douglas

BI STATE

For Information
Call 22109

MDC Employe:

Bi-State Development Agency is involved in an experimental transit program at McDonnell Douglas. In order to evaluate the quality of the transit portion of our program, we need to survey your knowledge of the existing service and your attitude toward it. It is very important to the future of these programs that you answer the following questions about Bi-State service.

Your cooperation will help all MDC employes to enjoy the best possible transit service.

(1) How do you presently get to work?

_____ Automobile alone _____ Bi-State Bus _____ Walk

_____ Carpool _____ Motorcycle _____ Other

(2) Please indicate which of these Bi-State services to McDonnell you are aware of?

_____ Brown Campus _____ Hazelwood/King Drive

_____ Lindbergh _____ City Limits/Berkeley

_____ Ashby/Hazelwood _____ Cross County

_____ Tubman Express _____ West County Express

_____ Florissant _____ Chambers Rd.

_____ Maplewood Airport _____ Alton/Hazelwood Park/Ride

(3) How did you become aware of these services?

_____ Observation _____ Area Newspapers _____ Called Bi-State

_____ Word of Mouth _____ Spirit _____ Radio

_____ McDonnell Douglas Coordinator _____ Other, specify

_____ Bulletin Board

(4) Which of the following services are near your home?

_____ Brown Campus _____ Hazelwood/King Drive

_____ Lindbergh _____ City Limits/Berkeley

_____ Ashby/Hazelwood _____ Cross County

_____ Tubman Express _____ West County Express

_____ Florissant _____ Chambers Rd.

_____ Maplewood Airport _____ Alton/Hazelwood Park/Ride

(5) Where can you obtain information about bus services at McDonnell Douglas?

_____ Bulletin Boards
_____ Transit Coordinator
_____ Bus Stops
_____ Spirit
_____ Cafeteria/Recreation Area
_____ None of the above
_____ Other, Specify

(6) Would you use transit services to get to work?

_____ Yes
_____ No

If no, please specify why?

_____ No close Route
_____ In carpool
_____ Routes arrive too late
_____ Routes arrive too early
_____ Too Expensive
_____ Second or third shift
_____ Takes too long
_____ Other, specify

(7) How can you obtain bus route and schedule information at Bi-State?

_____ Telephone
_____ Letter
_____ Pick up schedules
_____ Other, specify

(8) What type of job do you hold at McDonnell?

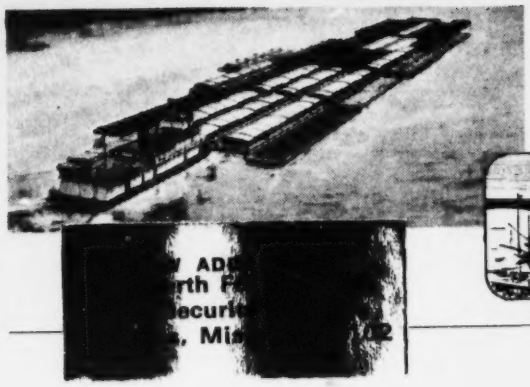
_____ Production, Maintenance
_____ Office, Clerical, Professional

(9) In which zip code do you live?

_____

PLEASE RETURN THIS FORM TO YOUR SUPERVISOR WHEN COMPLETED.

APPENDIX III
TRAFFIC FLOW



the
WATERWAYS JOURNAL
Weekly
SINCE 1887

314-241-7354

April 6, 1977

Mr. Wallace Altes, Director of Transportation Planning
East-West Gateway Coordinating Council
Pierce Building Suite 1200
112 North Fourth Street
St. Louis, Missouri 63102

Dear Wally:

I have the notice of your meeting April 11 in the University City Library on air pollution matters. Most unfortunately, I will be out of town on that day. It is most unfortunate as you may know I live in University City and have been trying to get together with the traffic people there for a long time.

I am enclosing a statement that I would like to make on this matter for your presentation before the meeting or to be attached as part of the proceedings thereof.

I hope that you have a good attendance and I will try to get in touch with you when I return at the end of the week of April 11.

Sincerely,

James V. Swift
Business Manager

JVS/klh

Enclosure

STATEMENT REGARDING AIR QUALITY
by James V. Swift
Member, Transportation Task
Force, East-West
Coordinating Council

I regret that I will be out of town on business on April 11 and therefore cannot attend the workshop and seminar on air pollution in the St. Louis area. I am therefore asking that this statement be presented at the meeting or placed in the record of the meeting.

As a citizen, who happens to live in University City, and a member of the Transportation Force of the East-West Coordinating Council, I have been concerned for a long time about the air pollution which is caused by certain restraints on the vehicular traffic in the St. Louis metropolitan area. I believe that if there was smoother traffic flow and less stops and starts, the latter caused by four way stop signs and uncoordinated traffic signals, the air quality in the St. Louis metropolitan area could be improved.

Tests have shown that it is the acceleration of engines after stops that cause the most air pollution and if smoother traffic flow could be developed it would necessarily cut down on auto vehicular emissions.

I would recommend, therefore, as I have done to the Transportation Task Force, that communities in the St. Louis metropolitan region and East-West Gateway itself, sponsor forums at which citizens could express their ideas on achieving better traffic flow. I know that there are certain stretches of road where traffic signals are not coordinated and every car has to stop, then start up, adding to the air pollution. There can be little doubt if the citizens who have to endure the stops would give input into how these stops could be eliminated it would be advantageous to the air quality program.

Even though federal legislation has passed, and there is state legislation pending, to allow right turns on red lights there is a profusion of signs making this illegal in many areas of St. Louis county, including University City. I would suggest that one of the first steps in cutting down air pollution from vehicles would be the elimination of these signs to conform with the federal statute.

There are also what I believe to be unnecessary signs for schools and playgrounds which should be considered for elimination. In this regard, many states have flashing signs for stops which are activated only when schools are going into session or when students are leaving the school. The states of Ohio and Indiana have these signs and apparently have good success with their use.

Most important, I would urge a regional meeting or community meetings to find out just how traffic flow can be improved. It should be pointed out also that although we are talking about air quality, energy, in the form of gasoline or diesel fuel, would also be helped by fewer stops. I again apoligize for not being able to attend the meeting in person. I offer my cooperation in anyway in the furtherence of the goals seen for cutting down air pollution.

Respectfully,

James V. Swift
Member of Transportation Task Force,
East-West Coordinating Council

EAST-WEST GATEWAY COORDINATING COUNCIL
BOARD OF DIRECTORS

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Chairman
Board of Commissioners
Monroe County

PAUL SCHULER
Chairman, Bi-State
Development Agency

ROBERT N. HUNTER
Chief Engineer, Missouri
State Highway Commission

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JOHN FEDRICK
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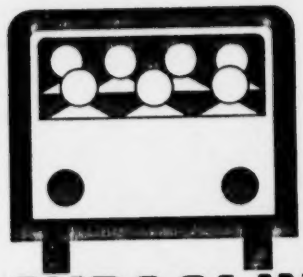
REVEREND ARTHUR EBELING
FRED TEER
NOAH GRAY

ALAN C. RICHTER, EXECUTIVE DIRECTOR

51 A



VANPOOLING
VANPOOLING
VANPOOLING
VANPOOLING
VANPOOLING
In The St. Louis Area

East-West Gateway Coordinating Council
St. Louis Area Council of Governments
St. Louis (Missouri-Illinois) Metropolitan Area

This Publication Is Made Possible
By A Grant From The U.S. Environmental
Protection Agency

March, 1977

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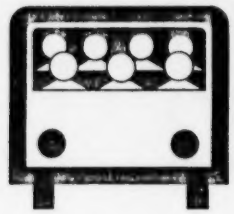


INTRODUCTION

Vanpooling is defined as a group of riders using a van-type vehicle to commute between places, generally to and from work. Vans can accommodate between eight and fifteen passengers. Vans are larger than a standard sized automobile or station-wagon but smaller than a conventional bus. Vanpooling can be financially self-sustaining when the purchase, operating and maintenance costs are recovered from fares charged to users. Vanpooling is designed to operate in markets where there is minimal or no existing public transportation.

A typical vanpool operation can be organized to provide personal door-to-door service, picking up each rider at his or her home and delivering them to the place of work. Alternatively, vanpooling can operate from a commuter park-and-ride facility or parking lot if appropriate arrangements are made.

In recent years, an increasing number of employers across the country have initiated vanpool programs. Nationwide interest in vanpooling has been stimulated by the many benefits accruing to participants in the program; benefits to employers, employees and the general public. In St. Louis the East-West Gateway Coordinating Council is actively promoting vanpooling and providing assistance to interested

employers, institutions, and local jurisdictions. This booklet summarizes the key aspects of a vanpool program in the St. Louis region. Additional information on the various vanpool considerations presented in this booklet is available from the Council's transportation planning staff.

Existing Vanpool Programs

There are a number of vanpool programs across the country that have received considerable publicity. These vanpool success stories are well-documented. At the forefront of the successful programs has been the 3M experience which began in 1973 as a 6-van pilot project, and has since been expanded to a permanent program with over 80 vans. The vans transport nearly 10 percent of 3M's work force, and company officials estimate, from expressed employee interest, that one-half of the work force would vanpool if the vans were made available.

Other successful programs have been initiated at the following companies, varying in scale from one van to a 50-80 van fleet:

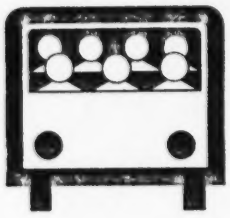
TABLE 1

EXISTING VANPOOL OPERATIONS

Company	Location	Number of Vans	Number of Riders
3M Company	St. Paul, Minn.	80	800
Ralph M. Parsons Co.	Pasadena, CA	31	310
CENEX	St. Paul, Minn.	21	175
General Mills	Minneapolis, Minn.	15	165
Aerospace Corp.	El Segundo, CA	11	110
Continental Oil	Houston, Texas	10	103
Texas Instruments	Dallas, Texas	10	120
Prudential Insurance	Newark, N.J.	8	85
Montgomery Ward	Chicago, IL	17	190
Tennessee Valley Authority	Knoxville, Tenn.	22	264

The Council staff has additional information on these programs and many other vanpooling efforts across the country. In all, there are over 50 major firms across the country that have implemented vanpool programs to date.

The Council's transportation planning staff has received requests from many St. Louis firms, institutions, and local governments for information and assistance in planning vanpool programs, and is presently developing vanpool programs for several of these employers in the St. Louis region as part of its planning and coordination activities.



VANPOOLING BENEFITS

Vanpool programs can provide substantial benefits to employers, employees, and the general public in the St. Louis region. Vanpooling is strongly supported by the Federal Highway Administration, the Urban Mass Transportation Administration, the Federal Energy Administration, and the Environmental Protection Agency. In addition to the above federal agencies, two state energy agencies, the Missouri Energy Agency and the Illinois Division of Energy, and the Missouri Air Conservation Commission have endorsed the concept of vanpooling as a means of reducing energy consumption, air pollution, and traffic congestion.

Benefits to Employers

Employers who have started vanpool programs cite many benefits that accrue from these programs. These include:

1. Improved employee attendance, punctuality, and morale.
2. A decrease in congestion around the employment site due to reduced vehicular traffic.
3. Expanded recruiting opportunities because transportation arrangements can be made for potential employees who previously might not have had access to the site.
4. Improved public relations by demonstrating a concern for the area's congestion, pollution and energy problems.
5. An advertising medium with employer's name on the outside of the van.
6. Substantially reduced parking requirements at the employment site.

Benefits to Employees

Participants in vanpool programs derive significant benefits. These include:

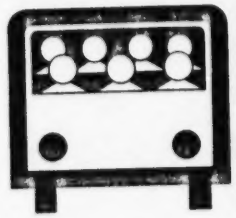
1. A reduction in commuting cost.
2. Reduced accident risk and tension of driving.
3. Lower insurance rates for automobiles not used for work trips.
4. Reliable and convenient service.
5. Opportunities to socialize with fellow employees.
6. A reduction in mileage of personal automobile and/or increase in mobility for other family members.
7. Possible elimination of a second automobile or postponement of an additional automobile purchase.

According to a report developed by the Baltimore Regional Planning Council and Maryland Department of Transportation, despite the fact that travel time in a vanpool may be as much as 30 percent longer than in a private automobile to allow for picking up of passengers, the total trip time for the vanpool user may be about the same as the private automobile because vanpools with special parking provisions eliminate time spent looking for parking spaces and the walk to the employment site entrance.

The vanpool coordinator-driver can reap several additional benefits such as free commuter transportation, personal use of the van at a minimal cost, and the retention of fares from passengers in excess of the minimum number required by the company.

Benefits to the General Public

Energy efficient vanpools can greatly contribute to the conservation of fuel and the reduction of air pollution in the St. Louis region. Vanpooling can free up existing parking spaces and reduce the amount of land allocated for automobile parking. By reducing traffic congestion on streets and freeways, the potential for accidents is lessened. Highway maintenance and construction can also be reduced. Mass transit operations can run more smoothly with the removal of automobiles from congested urban streets.



PLANNING AND IMPLEMENTING A VANPOOL PROGRAM

The successful operation of a vanpool program depends to a great extent upon the planning undertaken prior to implementation of the program. Before any type of planning can occur, however, the full support of top management must be secured. With this support, a vanpool program can be designed to meet the needs of the employer. There are five major tasks that should be completed by management when implementing a vanpool program:

1. Make a preliminary assessment.
2. Determine vanpooling interest among employees.
3. Investigate vanpooling constraints and funding sources.
4. Finalize program guidelines and procedures.
5. Establish experimental period.

Task One Make a Preliminary Assessment

This first step, an assessment of the total effort needed, is probably the most crucial one in the

planning of a vanpool program. This is because an initial determination is made of the feasibility of the program. The assessment is based upon available information on different vanpool options, the degree of commitment on the part of the company, financial constraints, seriousness of the problems that the company hopes to solve through the implementation of vanpooling, and the benefits the company wishes to reap from the program.

Task Two
Investigate Vanpooling Interest Among Employees

Once a preliminary assessment of the vanpool program has been made, it is necessary to measure the interest of employees. A vanpool program presentation will provide the employees with information that will assist them in completing a vanpool attitude survey. Analysis of this survey will show the amount of interest in vanpooling. Substantial interest will provide the stimulus for further investigation of the vanpooling alternative.

Task Three Investigate
Vanpooling Constraints and Funding Sources

Serious consideration must be given to possible legal constraints and potential funding sources. In many states across the nation, vanpool operations have been placed under the regulation of public service commissions and other state agencies. In Missouri, however, the Public Service Commission will not regulate vanpools if the vehicle is owned by the company and the driver is an employee, and if it is operated on a non-profit basis. The Illinois Vehicle Code is the only regulation on vanpools in Illinois at this time. The code states that a van must have a semi-annual safety inspection if registered in Illinois. A valid safety inspection of a Missouri registered van operating in Illinois, is exempt from the

Illinois inspection. Vans used by a firm in Missouri must meet the State of Missouri motor vehicle codes and pass the annual safety inspection.

Vanpool insurance requirements vary considerably from area to area, and vans may be placed under a firm's existing fleet policy coverage or under a new policy.

The determination of a funding source is another consideration. The major financial hurdle to vanpooling for some firms is the initial cash outlay to acquire the vans. One way to remove this obstacle is to lease the vans rather than purchase them. Vans can also be leased with the option to buy. Employee pools and/or groups can purchase the vans, or a contract operator can be hired and through him, the vans can be acquired.

Most firms that have implemented vanpool programs, however, have purchased the vans themselves. In the past, most firms have made the cash outlays for vans using their own capital. More recently, a number of firms across the country have considered using monies made available to them under the Federal-Aid Highway Act of 1976.

The Federal-Aid Highway Program is a cooperative effort between the States and the Federal Government. Each year the Federal Highway Administration (FHWA) apportions Federal-Aid Highway funds to the states for highway planning and construction and other transportation improvements.

Under the Federal-Aid Highway Act of 1976, employers can borrow Federal-Aid Highway (interest free) funds to finance up to 90 percent of the costs of acquiring and establishing vanpool programs.

Eligible costs for a vanpool project include three items:

1. Costs directly attributable to the establishment of vanpool programs such as personnel as well as other costs;

2. The vehicle acquisition costs with two stipulations--the vehicle is restricted to a vanpool vehicle for use by 8-15 persons and vehicle costs must be repaid within four years out of user fares, as is the common practice for existing vanpool programs;

3. Any financial loss incurred if the project fails within the first 12 months of the project's operation.

Federal-Aid Highway funds must be programmed through a public agency, and can then be passed on to private firms. The public agency can be the East-West Gateway Coordinating Council or a State agency such as the Missouri State Highway Department, or any other public agency. An agreement is reached between the private firm and the public agency concerning funding needs and methods, and an application is filed by the firm. The application must have the concurrence of the metropolitan planning organization in St. Louis, the Council. The application is then sent to the Missouri State Highway Department or the Illinois Department of Transportation. It is submitted by the Highway Departments to the Federal Highway Administration. Funding of approved vanpool projects is on a cost reimbursable basis. This means that the company's funds must be expended before the federal government can reimburse the firm.

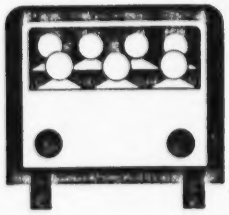
The company must purchase the vans, for example, and then send a progress invoice to the funding agency. Upon approval of the invoice, the company would then be reimbursed 90 percent of the cost of purchasing the vans. The money would be repaid to the Federal Highway Administration within a four year period from the fares charged to the users.

Task Four Finalize Program Guidelines and Procedure

Final guidelines, procedures, and policies are established for the vanpool program and transmitted to the employees. At this point, for example, driver-coordinators are selected, routes are designated, rates are finalized, vehicles are inspected, and all other necessary arrangements are made.

Task Five Establish Experimental Period

An experimental period is generally established to determine the effectiveness and overall satisfaction with the vanpool program. During this period the program is evaluated and a decision is made as to the continuation/elimination/expansion of the program.



VANPOOLING ASSISTANCE

As part of the Council's Transportation Systems Management Program, the staff is actively promoting vanpooling in the St. Louis region. The underlying goal is to increase the efficiency of the existing highway and transit network through the planning of various types of transportation improvements. Vanpooling is one way of increasing the efficiency of the existing transportation systems. The Council is offering its assistance in planning all aspects of vanpool programs at no charge to the company or firm. Staff can develop and assist in conducting surveys, develop cost information and other types of data, help in applying for federal funds, and make presentations to employee groups and other interested parties. Vanpooling is a program that can solve congestion, pollution, energy, parking, employee morale, and many other problems that employers, institutions, and local and county governments are presently facing.

TABLE 2
VANPOOL PROGRAM COSTS

Cost Elements	Company Resources Not Recovered From Fares	Cost Recovered From Fare Revenues
Administrative Costs:[1]		
Personnel Staff Time	X	
Telephone Charges	X	
Postage and Stationery	X	
Program Promotion:		
Fliers, Posters, etc.	X	
Initial and Follow-Up Surveys:[1]		
Postage and Return Postage	X	
Stationery	X	
Computer Matching	X	
Printing Charges	X	
Billing and Fare Collection:		
Staff Time	X	
Printing Materials	X	
Program Monitoring and Preparation of Status Reports:		
Staff Time	X	
Supplies	X	
Publication Costs	X	
Purchase or Lease Cost of Vehicles:[1]		
Capital Cost of Financing Van Purchase	X	
Actual Purchase or Lease Cost of Vans		X
Insurance		X
Vehicle Licensing		X
Drivers' Licensing		X
Maintenance		X
Tires		X
Fuel		X
Drivers' Physicals		X
Defensive Driving Course	X	
Parking	X	
Decals or Insignia for Vans	X	

[1] The initial administrative costs for developing a vanpool program and the cost of vans are eligible for 90 percent financing by the Federal Government (Department of Transportation)

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TABLE 3

MONTHLY PASSENGER FARE RANGES[1]

DAILY ROUNDTRIP MILEAGE	VANPOOL	SINGLE OCCUPANT[2] AUTOMOBILE COST
10	$15.94 - 20.06	$ 50.00
20	$19.09 - 22.05	80.00
30	$21.00 - 23.37	110.00
40	$22.75 - 25.63	140.00
50	$24.50 - 27.97	170.00
60	$26.25 - 30.31	200.00
70	$28.00 - 32.65	230.00
80	$29.74 - 35.00	260.00
90	$31.50 - 37.34	290.00
100	$32.61 - 39.69	320.00

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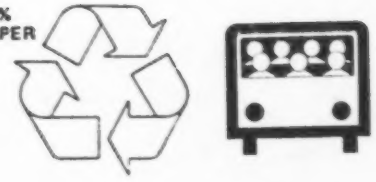
[1]These ranges are based on vanpool program fares established by five different firms including 3M, CONOCO, General Mills, CENEX, and TVA.

[2]Cost includes a rate of $.15 per mile plus $1.00 a day for parking and a 20 day work month.

THIS IS 100% RECYCLED PAPER



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Transit Services for McDonnell/Douglas

NOW 13 ROUTES GOING YOUR WAY

ALTON-HAZELWOOD PARK RIDE	513 X
ASHBY-HAZELWOOD EXPRESS	294 X
BROWN CAMPUS EXPRESS	71
CHAMBERS ROAD	61
CITY LIMITS — BERKELEY	16
CROSS COUNTY	47
FLORISSANT — BERKELEY	74
KING DRIVE-HAZELWOOD EXPRESS	232 X
LINDBERGH	49
MAPLEWOOD AIRPORT	606
SPANISH LAKE — HAZELWOOD EXPRESS	636 X
TUBMAN EXPRESS	556 X
WEST COUNTY EXPRESS	169 X

Effective 4-18-77. Routes and Schedules subject to change.

Bi-State Development Agency

BI STATE

3869 Park Avenue, St. Louis, Mo. 63110

This brochure has been funded through a grant from the Environmental Protection Agency in conjunction with the East-West Gateway Coordinating Council.

FARES — HAVE EXACT CHANGE!
Your basic fare should be deposited in the farebox upon boarding the bus. Your driver will advise you about paying appropriate zone charges. Remember, Bi-State operators carry no money to make change — so always have change ready for the exact fare.

FARE INFORMATION REGULAR SERVICE

	BASIC	EXPRESS	PARK/RIDE
ADULTS	25¢	Basic Fare + 5¢	60¢
ELDERLY AND HANDICAPPED (Rush Hour)	15¢	15¢	15¢
(non-Rush Hour)	10¢	10¢	N/A

(With ID Card — contact Bi-State for more information.)

ZONES AND TRANSFERS
Each Bi-State passenger will pay a fare based on the distance and bus line traveled. Zone charges are 10¢ for adults but are not charged to elderly or handicapped persons with proper identification issued through Bi-State.
Transfers are issued if you need to take more than one bus to reach your destination. Transfers cost 10¢ for adults and are issued free to elderly and handicapped persons with proper Bi-State identification. Ask the operator for a transfer when you board. It allows you to catch another bus without paying an additional full fare at a point where bus routes intersect. Your transfer is good only for the time shown. You *cannot* use a transfer on the same route, for a stop-over, or for a return trip.

PASSES — FOR REGULAR PASSENGERS
Weekly passes may be used in lieu of a basic cash fare on all local, express, shopper express, and park/ride routes. Check with your driver to determine if zone charges are required in addition to the pass for your planned trip. Weekly passes cost $3.50 and are available at Bi-State Development Agency general offices, Bi-State garages, and many commercial establishments. Write Bi-State for a list of pass outlets.

BUS STOPS / BUS ROUTES	513X	71	294X	61	16	47	74	232X	49	606	636X	556X	169X
WORLD HEADQUARTERS	•	•	•	•	•	•			•		•	•	•
GATE 102	•	•	•	•	•		•	•	•		•	•	•
BUILDING 101		•	•	•	•		•	•	•		•	•	
BUILDING 4	•		•	•	•		•	•	•	•	•	•	•
GATE 44	•		•	•	•		•	•	•	•	•	•	•
BUILDING 27	•	•	•		•		•	•	•	•	•	•	•
LINDBERGH & BROWN	•	•	•	•	•		•	•	•	•	•	•	•
BROWN CAMPUS		•		•									•

IMPORTANT NOTICE:
Certain trips on each line shown do not make all stops indicated. Consult individual timetables or call Bi-State for precise bus stop information.

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Bi-State transit lines serving McDonnell/Douglas

GENERAL

All service to the McDonnell-Douglas complex operates Monday through Friday unless otherwise noted. All trips within the complex are conveniently scheduled to coincide with daytime working hours. Precise information concerning schedules and stops is featured in timetables available through the McDonnell-Douglas transit information coordinator, at the recreation office, or by calling Bi-State.

McDONNELL-DOUGLAS SHUTTLE

Running during rush hours, this handy service connects all tracts to Bi-State bus lines. Your recreation office will have schedule and route information, or call 22109. It's free!

ALTON-HAZELWOOD PARK RIDE 513X

Two morning buses stop at Eastgate Shopping Center and the Belt Line Venture store where special parking is available at no charge. Other stops include Washington at College, Washington at Broadway, and Broadway at Ridge. Two return trips are scheduled each evening.

BROWN CAMPUS EXPRESS 71

One morning trip leaves Grand and Iron northbound to I-70 with stops in the McDonnell- Douglas complex before arriving at Brown Campus. One bus operates in the evening.

ASHBY-HAZELWOOD EXPRESS 294X

Three morning and three evening return trips with select stops at the McDonnell-Douglas complex serve the near Northwest County area.

CHAMBERS ROAD 61

This transit line has now been extended to serve the Brown Campus area. All morning and evening rush hour trips now serve both the Brown Campus and McDonnell-Douglas complex.

CITY LIMITS — BERKELEY 16

Special rush hour trips operate to and from McDonnell-Douglas each weekday, serving Maplewood, west city limits, Wellston, Normandy, Kinloch and many other communities along the route.

CROSS COUNTY 47

Service is provided to and from McDonnell-Douglas World Headquarters Building only on certain northbound and southbound trips. This line operates through the heart of St. Louis County.

FLORISSANT 74

Limited rush hour service connecting McDonnell-Douglas with downtown St. Louis is provided on the Berkeley branch of this line. Areas served include much of the north city, Jennings, and Berkeley.

KING DRIVE-HAZELWOOD EXPRESS 232X

Two morning and two evening trips provide fast, convenient service for McDonnell-Douglas employees along this route. Serves north city and the near north county area. Stops are limited.

LINDBERGH 49

Serving communities along Lindbergh from Jamestown Mall to Mehlville, this line provides convenient service all day Monday through Saturday with special rush hour trips into the McDonnell-Douglas complex Monday through Friday. Rush hour service operates northbound from South County Shopping Center and southbound during peak hours from Larimore & Bellefontaine Road.

MAPLEWOOD — AIRPORT 606

This line provides service all day to McDonnell-Douglas at Lindbergh and Brown Road. It operates southbound from Village Square Shopping Center, and northbound through Maplewood, Clayton, and other communities south of McDonnell-Douglas.

SPANISH LAKE-HAZELWOOD EXPRESS 636X

New service! Direct rush hour service from Spanish Lake, Black Jack and Florissant.

TUBMAN EXPRESS 558X

Three trips connect East St. Louis and Downtown St. Louis to McDonnell-Douglas with fast, convenient service.

WEST COUNTY EXPRESS 169X

Now serves Brown Campus! This line starts at the Daniel Boone Branch Library in West County. Stops are made between Ellisville and Manchester on Manchester Road and on Highway 141 to U.S. 40.

How to get Route and Schedule Information

HAVE A QUESTION? CALL US!

Even veteran bus riders are sometimes surprised to find that Bi-State has an Information Service to get you to your destination via the quickest and most convenient route. Our phone number in Missouri is 773-1120. Our toll free Illinois numbers are 875-4144 from the East St. Louis area, 233-3700 from the Belleville area, and 254-0623 from the Alton area.

When you call there are three things we need to know in order to find the most convenient route for you.

1. where you are;
2. your intended destination;
3. when you want to arrive.

Our information operators are on duty weekdays from 6:30 a.m. to 10 p.m. and on weekends and holidays from 8 a.m. until 4 p.m. For especially speedy service, call during the weekday evening hours or on weekends. Please remember to have a pencil and paper ready when you call.

TIMETABLES AVAILABLE FOR ALL LINES

If you would like printed information on routes you frequently use, take advantage of the free pocket-size timetables published for all Bi-State bus lines.

Call or write Information Service and request the timetables you need. If you would like to be kept informed of route changes and service improvements, ask us to put you on our mailing list. Then whenever we have a schedule change, you will automatically receive an updated timetable in the mail. This is a customer service provided without charge by Bi-State. Use the convenient return mail post card attached to this brochure.

McDONNELL-DOUGLAS INFORMATION COORDINATOR

For your convenience McDonnell-Douglas has designated a transit information coordinator who can answer any of your questions concerning Bi-State bus service. Call Art Davies at 22109 for up-to-date information including the most recent timetables for all routes serving McDonnell-Douglas. Timetables are available at the recreation office, and additional copies are available through the transit information coordinator.

Note: Several private operators provide chartered bus service to McDonnell-Douglas from outside the Bi-State service area. The recreation office, not Bi-State, should be contacted for additional information about these lines.

Please complete and return to Bi-State:

☐ I am interested in receiving timetables for the lines indicated below:

☐ I am interested in being placed on the Bi-State mailing list:

(If more than one copy is desired, indicate quantity)

☐ ALTON-HAZELWOOD PARK RIDE	513 X
☐ ASHBY-HAZELWOOD EXPRESS	294 X
☐ BROWN CAMPUS EXPRESS	71
☐ CHAMBERS ROAD	61
☐ CITY LIMITS — BERKELEY	16
☐ CROSS COUNTY	47
☐ FLORISSANT — BERKELEY	74
☐ KING DRIVE-HAZELWOOD EXPRESS	232 X
☐ LINDBERGH	49
☐ MAPLEWOOD AIRPORT	606
☐ SPANISH LAKE — HAZELWOOD EXPRESS	636 X
☐ TUBMAN EXPRESS	558 X
☐ WEST COUNTY EXPRESS	169 X
☐ OTHERS (list)	

Comments: _____

NAME _____

ADDRESS _____

CITY _____

STATE & ZIP CODE _____

This

For several years, the East-West Gateway Coordinating Council has been working with local, state, and federal officials to determine the extent of the air pollution problem in the St. Louis region, and to develop feasible strategies to reduce air pollutant levels. The Council is presently under contract to the U.S. Environmental Protection Agency (EPA) to conduct an areawide public information campaign on St. Louis air quality and to find out what citizens, businesses, and elected officials can do to clean up the environment. In addition, the Council is developing and promoting several voluntary transportation strategies that have significant potential for decreasing air pollution.

Background

The EPA's designation of St. Louis as an air quality control region and the Council's subsequent air quality work has its origin in the Clean Air Act of 1970. The Act directed EPA to establish primary and secondary ambient air quality standards. The air quality standards are really what EPA is all about. The attainment and maintenance of the primary standards protect the public's health with an adequate margin of safety. Secondary standards protect the public welfare* from adverse effects associated with the presence of air pollutants in the atmosphere.

Under the mandate of the 1970 Act, the initial responsibility for developing and enforcing emissions control regulations to satisfy air quality standards has rested with the states. Each state is required to develop a state implementation plan (SIP) to inform the federal government as to how air quality will be improved to meet national ambient air standards. Included in the SIP is a description of the proposed methods of controlling transportation-related pollutants as well as those pollutants emitted from factories and other stationary sources.

Tremendous progress has been made in the area of stationary source controls. Many agreements have been reached with industry to maintain existing employment levels and at the same time implement environmental clean-up measures and technologies. It has been in the area of control of transportation-related pollutants that the air quality program developed by EPA and the states has encountered the greatest number of obstacles. In an effort to overcome these obstacles, the federal government and the states are increasingly turning to metropolitan planning organizations such as East-West Gateway in order to develop voluntary transportation strategies that are consistent with regional goals and policies and, that at the same time, can reduce air pollution.

Air Pollution In St.Louis

To meet national ambient air quality standards in St. Louis, carbon monoxide levels must be reduced by 20% and hydrocarbons by 65%. EPA has found that in urban areas, well over 50% of the hydrocarbon emissions and 70% of carbon monoxide emissions are from private automobiles. The extensive use of automobiles in the St. Louis metropolitan area has greatly contributed to the air pollution problem. Maintaining the mobility and easy access that St. Louis area residents enjoy and rely upon, and at the same time, reducing vehicle use in the area in order to decrease pollution levels is a seemingly difficult task.

EPA's current approach in St. Louis:

- develop voluntary strategies that contain various incentives.
- publicize benefits that accrue from implementation of these strategies.
  - economic benefits
  - health benefits

Economic Benefits

Numerous measures can be adopted by employees to reduce air pollution. Carpooling, vanpooling, rescheduled hours, and transit promotion are a few examples. These strategies can be implemented by businesses with minimal costs to the employer and significant cash savings to the employees ($100's of dollars per year).

Health Benefits

Pollution control can reduce the likelihood of heart and lung disease, asthma, and allergy aggrevations, coughing, irritations of the respiratory system, headaches, eye irritation.

*The definition of welfare is the effects on soil, water, crops, vegetation, man-made materials, animals, wildlife, weather, visibility, climate, and damage to and deterioration of property and hazards to transportation, as well as effects on economic values and on personal comfort and well-being.

For More Information Contact:
East West Gateway Coordinating Council
112 N. 4th Street
St. Louis, MO 63102
314-421-4220 618-274-2750

This publication is made possible by a grant from the U.S. Environmental Protection Agency

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